

REMARKS

Claims 1-14 are pending in the application and stand rejected under 35 U.S.C. §103(a). Applicant respectfully submits that the preceding Amendment and the following Remarks remove all grounds for rejection of the application, thereby placing it in condition for allowance.

Amendment:

Claims 2-4 and 10 have been cancelled. Cancellation of these claims is without prejudice, without intent to acquiesce in any rejection of record, and without intent to abandon any originally claimed subject matter. In fact, the limitation of claim 2 has been incorporated into amended claim 1; new independent claim 18 corresponds to original dependent claim 4; and cancelled claims 3 and 10 have been replaced with new claim 20. New claim 20 and new claims 21-25 that depend therefrom correspond *verbatim* to claims 1-6 that were included in priority application U.S. Serial No. 60/250,894 filed November 29, 2000. New claim 19 finds support *inter alia* in original claim 5. Claim 12 has been amended to depend solely from claim 11. New claim 17 has been added and corresponds to original claim 12 as dependent from claim 9. No new matter is added by way of these amendments.

As amended, claims 1, 5-9, 13-14 and 17 all relate to artificial turf with *surface fibers* that change color in response to a change in *temperature*. Claims 11-12 and 18-19 all relate to artificial turf with *surface fibers* that change color in response to a change in *chemical environment*. Claims 20-25 all relate to artificial turf with *surface fibers* that change color in response to an *elastic elongation*.

Claims 1, 5-9, 13-14 and 17 are allowable:

The Examiner has maintained her rejection of claims 1-12 and 15-16 under 35 U.S.C. §103(a) as being unpatentable over Rakowski (PCT WO 01/78851). The Examiner has also maintained her rejection of claims 13-14 under 35 U.S.C. §103(a) as being unpatentable over Rakowski in view of Johnson (U.S. Patent No. 5,394,824). Claims 15-16 were canceled in the Response filed May 5, 2003. New claim 17 is included under this heading since it depends from

claim 9. With respect to claims 1-12 the Examiner argues that:

“[...] Rakowski discloses the invention as recited above [sic, but] he fails to explicitly state if the fibers include a chromogen. However, since Rakowski for example indicates that layers 12 in Fig. 2 is optional (for example refer to page 6, lines 21-22 of the specification), then it is possible that the fibers on layer 11 of one of the embodiments could absorb the chromogen that is being applied to the back of the layer 11 as disclosed in the last paragraph of page 7. [...]”

This rejection is respectfully traversed; reconsideration and withdrawal is requested. First, Applicant points out that Rakowski *does not* describe a device in which layer 11 (or layer 1) contains the chromogen. Rather, the Examiner hypothesizes that *if* the Rakowski device were modified by removal of layer 12 (as suggested on page 6, lines 21-22), a device *might* be produced in which some chromogen enters layer 11 (or layer 1). Nothing in Rakowski suggests that this might occur; it is the Examiner's invention.

Moreover, even if the chromogen were to enter layer 11 (or layer 1), there is no indication that it would enter the *fibers* that are optionally deposited on top of a layer of adhesive that is sprayed onto layer 11 (or layer 1). In this context, Applicant notes that the thermochromic chromogens of Rakowski (i.e., liquid crystals) solidify upon application to layer 11 (or layer 1, see page 4, lines 21-27). The diffusion of solidified liquid crystals is presumably extremely limited or non-existent. Besides, even if a chromogen were to hypothetically diffuse into a fiber, the resulting device would *not* include a plurality of fibers that are each coated with or composed of the chromogen as required by claims 5 and 7, respectively. Furthermore, the extent of diffusion would never be sufficient to produce a device that includes a plurality of fibers that visibly change color in response to an increase in temperature as required by claim 9. There is no teaching or suggestion of these devices in Rakowski, even as modified by the Examiner.

In fact, even if the Examiner is correct that removal of layer 12 *could* allow some chromogen movement (e.g., under certain circumstances), it is well established that the *possibility* that a result or characteristic could exist in the prior art is *not* sufficient to establish the

inherency of that result or characteristic. *In re Rijckaert*, 9 F.3d 1531, 1534 (Fed. Cir. 1993). In order to establish inherency, the extrinsic evidence “must make clear that the missing descriptive matter is *necessarily* present in the thing described in the reference, and that it would be so recognized by persons of ordinary skill. Inherency, however, may not be established by probabilities or possibilities. The mere fact that a certain thing may result from a given set of circumstances is not sufficient.” *In re Robertson*, 169 F.3d 743, 745 (Fed. Cir. 1999). As described, Applicant submits that it is *highly unlikely* that any chromogen would be absorbed by the fibers. This is a far cry from the standard imposed by the courts. Withdrawal of the rejection is therefore respectfully requested.

The Examiner further argues with respect to claims 1-12 that:

“[...] it would have been obvious to one of ordinary skill in the art at the time of the invention was made to paint, spray, or apply the chromogen element directly to the fibers of the Rakowski’s device in order to reduce the manufacturing cost by reducing the number of parts needed to fabricate the device and improve the color change.”

Applicant previously responded to this argument in the Response to Office Action that was filed August 13, 2003; however, the Examiner did not address Applicant’s arguments in the Office Action of October 22, 2003. Applicant therefore reiterates his position as follows.

The modified manufacturing process that the Examiner suggests is entirely contrary to the teachings of Rakowski. Indeed, Rakowski explicitly teaches that the liquid crystals should be located at the *heart* of his multi-layer device, namely within layer 3 that is sandwiched in between protection layer 1, heating layer 5 and support layer 6. Additional stabilization layer 2 and compressible layer 4 are optional (e.g., see Fig. 2). The fibers that the Examiner refers to are optionally deposited onto an adhesive layer that has been sprayed onto the surface of protection layer 1 to provide the appearance and texture of grass (see page 4, lines 4-8). Rakowski places the liquid crystals *below* the protection layer 1 in order to protect them from the elements and to ensure the durability of the device (e.g., see page 3, lines 28-30 and page 6, lines 24-30). Rakowski places the liquid crystals directly *above* the heating layer 5 (or separated therefrom by

an optional heat conducting layer 4) so that heat is rapidly transferred to the liquid crystals at a point of impact (e.g., see page 5, lines 23-25 and page 6, lines 2-8). The Examiner's suggestion that one skilled in the art would be motivated to paint, spray, or apply the liquid crystals directly onto the optional surface fibers instead of or in addition to layer 3 flies in the face of these teachings. Based on Rakowski and without the benefit of hindsight provided by review of the present application, one skilled in the art would certainly not expect such a modification to *improve* the color change. Instead, he or she would expect the suggested modification to *reduce the durability* of the device and *weaken* the color change.

With respect to claims 13-14 and the secondary reference of Johnson, Applicant respectfully points out that the deficiencies of Rakowski described in the previous section are not remedied by Johnson. Indeed, the combined references do not teach an artificial turf comprising a substrate and a plurality of fibers protruding from the substrate, wherein the fibers include a thermochromic chromogen (as required, at the very least, to render obvious claim 1 and hence claims 13 and 14 that depend therefrom). The Examiner relies on Johnson solely to teach certain elements added in dependent claims 13 and 14, specifically the inclusion of indicia for marking the boundaries of a sports field. Since at least one limitation of claims 13 and 14 is not even taught or suggested by the combined references, the rejection of claims 13-14 under 35 U.S.C. §103(a) cannot stand. Applicant therefore respectfully requests that the Examiner also withdraw this rejection.

Claims 11-12 and 18-19 are allowable:

Claims 11-12 were rejected by the Examiner under 35 U.S.C. §103(a) in view of Rakowski. Claim 18 corresponds to original claim 4 that was also rejected. Claim 19 depends from claim 18. Applicant respectfully submits that rejection of claims 11-12 and 18-19 in view of Rakowski is inappropriate because Rakowski does not teach or suggest all of the claimed elements and limitations. Indeed, claims 11-12 and 18-19 all relate to artificial turf with *surface fibers* that change color in response to a change in *chemical environment*. As noted above, Rakowski teaches artificial turf that includes an *inner layer* that changes color in response to a

change in temperature. The Examiner refers Applicant to the last paragraph of page 4 of Rakowski (see page 2 of Office Action mailed October 22, 2003) that reads:

“The chemical formula of the indicator medium can also be adjusted to change the response time and “relaxation” time of the color change. This liquid is known for being screen printed onto cotton T-shirts to show colour change, *triggered by changes in the wearer’s skin temperature.*” (*emphasis added*)

This section of Rakowski discusses the fact that the thermochromic properties of the color changing inner layer depends on the chemical *composition* of the “indicator medium” that is placed within the inner layer (e.g., if liquid crystal A is used instead of liquid crystal B, the color of the inner layer may change at 45°C instead of 65°C). Either way, the color change is still driven by a *temperature change*. Rakowski does *not* describe artificial turf with surface fibers that change color *in response* to a change in *chemical environment* (e.g., a change in pH, contact with a chemical compound, etc.). Besides, the “indicator medium” is again located within an inner layer of the material and not the surface fibers; accordingly, the arguments presented above with regards to claims 1, 5-9, 13-14 and 17 apply here too. For these reasons, Applicant respectfully submits that claims 11-12 and 18-19 should not be rejected over Rakowski.

Claims 20-25 are allowable:

As noted above, claims 20-25 correspond *verbatim* to claims 1-6 of priority application U.S. Serial No. 60/250,894, filed November 29, 2000. Claims 20-25 therefore have an effective filing date of November 29, 2000. Claims 20-25 are related to original claims 3 and 10 that were rejected by the Examiner under 35 U.S.C. §103(a) in view of Rakowski. As noted in the Response to Office Action that was filed on August 13, 2003, Rakowski has an effective 102(a) date of October 25, 2001 (i.e., *after* the effective filing date of claims 20-25). Rakowski cannot therefore be used as prior art against claims 20-25.

Besides, rejection of claims 20-25 in view of Rakowski would be inappropriate since


Rakowski does *not* even teach the subject matter of claims 20-25. Indeed, claims 20-25 all relate to artificial turf with *surface fibers* that change color in response to an *elastic elongation* (e.g., fibers that include or are composed of poly(diacetylene) polymers as recited in claims 21-23 and discussed on pages 6-7). As noted above, Rakowski teaches a material with an *inner layer* that includes *liquid crystals* that change color in response to a *change in temperature*. There is no teaching that *surface fibers* optionally added onto the surface of the material change color, let alone that they change color in response to an *elastic elongation*.

Conclusion:

Based on the arguments presented above, it is submitted that the pending claims are allowable over the art of record. Applicant would like to thank the Examiner for her thoughtful comments and careful consideration of the case. As discussed on March 3, 2004, the Examiner is invited to contact the undersigned at (617) 248-4793 at her earliest convenience to discuss the present case. Please charge any fees that may be required, or credit any overpayment, to our Deposit Account No. 03-1721.

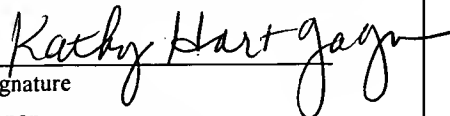
Respectfully submitted,

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Limited Recognition Under 37 CFR §10.9(b)

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